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THE DEATH-RATE OF THE CITY OF NEW YORK AS
AFFECTED BY THE COSMOPOLITAN CHARACTER
OF ITS POPULATION.

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This study was suggested by the "marking-time" during the past few years in the progress of the death-rate of the city toward an expected lower level. In seeking the causes of this halt in a hitherto uninterrupted decrease, the writer became impressed with the significance of the part played by the influx of the immense number of immigrants from continental Europe. In a community of four and one-quarter millions of people (a fair estimate of the population of the city) it is reasonable to suppose that the presence of one and three-quarters millions of aliens would appreciably affect the death-rate of the community, especially when we consider that the customs, habits, and environment of fully 80 per cent. differ widely from the requisites for the making of a healthy member of the body politic. During the fiscal year ending June 30, 1907, the number of aliens arriving at the port of New York was 1,004,000, and of that immense number only 50,000 were credited to Great Britain and Ireland. Well might the student of political, social, and hygienic economy ponder over the question of the assimilative capacity of the country at large and of the urban communities in particular!

The crude death-rate, as ordinarily used in comparisons of cities and countries, is, as you all know, a much-abused weapon of offence and defence, but in the comparison of a city's hygienic progress or retrogression with its own past it may be depended upon, provided no great change has taken place in the population as regards age, sex, or occupational conditions. An application of standard death-rates at a series of age-groups was made to the population of the city as ascertained by the censuses of 1875 and 1900, and it was found that the resulting difference did not exceed one-tenth of one point per thousand. Therefore, it seems allowable to use the crude death-rate of this city as an index of the prevailing sanitary conditions, and an analysis of the factors affecting its increase or decrease may be indulged in.

In analyzing the following tables, we must not at any time forget that all conclusions are, of necessity, more or less tentative by reason of

DEATHS AND DEATH-RATES PER 100,000 ACCORDING TO NATIVITY OF DECEASED IN OLD CITY OF NEW YORK, 1906.

POPULATION AND NATIVITY.

Cause of Death.		Total.	United States.	Ireland.	Germany.	Italy.	England.	Austria-Hungary.	Scotland.	British America.	Sweden.
All Causes		2,464,432	1,551,854	198,028	231,050	104,954	134,714	49,283	73,920	14,602	20,077
Deaths		46,108	28,067	5,795	3,966	1,906	1,824	852	1,227	276	256
Death-rate		187.1	184.9	2926	1717	1816	1354	1729	1660	1890	204
Typhoid Fever		Deaths	369	208	41	22	32	8	21	2	5
Death-rate		14.9	13.7	20.7	9.5	30.4	6.7	16.2	28.4	13.7	4.7
Pulmonary Tuberculosis .		Deaths	5,900	3,156	944	434	290	224	112	246	34
Death-rate		239.4	207.9	476.7	187.8	276.3	172.4	227.3	323.8	356.2	48
Cancers		Deaths	1,856	563	330	351	69	172	69	112	34
Death-rate		75.3	37.1	166.6	161.9	65.7	152.9	140.0	151.5	160.7	47
Heart Disease		Deaths	3,506	1,320	755	535	169	222	102	141	27
Death-rate		142.3	86.9	381.2	231.5	161.0	170.0	207.0	190.7	212.3	19
Broncho-pneumonia . . .		Deaths	3,379	2,875	145	99	113	43	18	24	37
Death-rate		137.1	189.4	73.2	45.2	107.7	34.2	36.5	32.5	75.3	26
Lobar Pneumonia . . .		Deaths	3,303	1,750	572	294	232	108	70	29	14
Death-rate		134.0	115.3	288.8	127.2	221.1	83.9	142.0	108.2	198.6	237.4
Chronic Bright's		Deaths	3,232	1,205	812	491	113	155	99	97	3
Death-rate		131.2	79.4	410.0	212.5	107.7	121.0	209.0	131.2	226.0	27.4

the entire absence of age-grouping among the different nationalities and races comprising the population of the city. The presence of such a grouping is almost a *sine qua non* in the discussion, and the means taken to provide a substitute therefor, poor though it may be, consists in the preparation of tables of deaths and death-rates from certain causes and in certain districts, the causes being those that affect chiefly certain age-groups, and the districts such as are typical of certain nationalities, races, and age-constitution, thus enabling tolerably fair conclusions to be arrived at.

In Table I are shown the deaths and death-rates per 100,000 from all causes and from certain prominent causes by nativity of descendants in the old city of New York (present Boroughs of Manhattan and the Bronx) for the year 1906. At first glance at the general death-rate column it would seem, if we compare the death-rate of 1849 per 100,000 of persons born in the United States with that of 1871 per 100,000 for the entire city, including all nativities, that there is very little effect produced on the rate by the mortality among the foreign element, but it must be borne in mind that, of 28,067 deaths attributed to the United States, only 10,080 had American parents, the rate among the latter being about 1440 per 100,000, the remaining 18,067 deaths of natives born of foreign parents producing a rate of 2256 per 100,000. This low mortality of 1440 per 100,000 among the native Americans and immediate descendants of native fathers and mothers and the high rate of 2256 among descendants of foreigners might be accepted and conclusions drawn therefrom, provided assurance could be given that the age-periods of these two groupings of the population were approximately the same; but this is not the case. The greater fecundity of the alien produces an undue proportion of children in that group under five years of age, and naturally a higher general death-rate is the result. The difference between the two rates is so great, however, that unequal age-constitution does not account for all of the increase. Density of population, sanitary surroundings, personal habits and cleanliness, poverty, etc., play a most important part in increasing the mortality among the descendants of aliens.

The general death-rate of the natives of each country specified in Table I is instructive, though in the comparison of one with the other it is open to the same objection; namely, the lack of specific figures as to age-constitution. The Irish lead with a rate of 2926, while the Swedes apparently are the healthiest, with the low rate of 1121. The high rate among the former is *partly* explainable by the fact that between 1847 and 1893, a period of forty-six years, the influx from Ireland was immense and constant, while for the past fourteen years the numbers have been small in comparison, thus producing an Irish population in this

city whose age distribution, especially at ages fifty and upwards (assuming the average age of each immigrant to be twenty-five years), is favorable to an exceedingly high death-rate, and the low death-rate among the Swedes being partly explainable by the fact that immigration from Sweden began at a comparatively recent year (1885), and that there is, as a result, a preponderance of adults at ages between twenty-five and fifty, at which ages the normal death-rate ranges between 10 and 12 per 1,000. What has been said of the Swedes is true of some of the other nationalities; for example, the Italians, Russians, Poles, and Hungarians.

In considering the mortality from typhoid fever in this table, remembering that this is a disease that attacks all ages, we find that, omitting those nationalities where the deaths do not number twenty or over, the Italians and Austro-Hungarians present the highest rates. This is what we might naturally expect by reason of the well-known unsanitary personal condition of these classes. The Germans and the Russian Poles, on the other hand, afford the lowest rates, the reason in the case of the Germans being the habitual cleanliness of this nation, and of the Russian Poles the prevention of direct infection by the removal of most cases among them to hospitals for treatment.

Interesting indeed are the figures presented in the table of the mortality from pulmonary tuberculosis. Switzerland leads the list with a rate of 564, Ireland comes next with 476, Bohemia follows with 438, then Scotland, Austria-Hungary, and Italy follow in the order named, Russia-Poland bringing up the rear with the comparatively low rate of 172. Disregarding the Swiss, who number only a little over 6,000 and taking up the rate among the Irish, we are confronted with the remarkable rate of nearly 500. This is partially explained, as already noted in commenting upon the higher general death-rate among the native Irish, by the unfavorable age-grouping of the Irish population. The average age at death of the Irish from this disease, based upon two hundred deaths reported, was found to be forty-two years, while the average age at death among the entire population, based upon eight thousand deaths attributed to this cause, was thirty-six years. It is noteworthy in this connection that the death-rate from this disease in all Ireland in the year 1905 was only 204, the rate among the Irish in this city being almost two and one-half times that in their native country. It is hard to believe, therefore, that this high rate is dependent entirely upon a national predisposition. It is true that we should expect an increase by reason of the comparatively severe climate and the absence of the pure air of the home country, but this is in a measure offset by the more abundant and nutritious food to be had here.

As regards the next cause, cancer and sarcoma, all the natives of foreign countries except Italy and Sweden show a rather high rate, the natives

of the United States showing the lowest rate. Apparently, the contention that excessive meat-eating and the drinking of spirituous liquors are the predisposing factors in the causation of the ever-increasing mortality from this disease is upheld when we consider that the foreign nations, with the exception of the two above mentioned, are in the category of the large meat-eaters; but this conclusion must not be too hastily jumped at, as the age distribution has much to do with the mortality from this disease which does not assume a prominent place in the mortality list until the age of forty has been reached.

In considering the mortality from organic heart disease and chronic Bright's disease, the most remarkable thing to be noted is that every nationality having a high mortality rate from cancer has a correspondingly high rate from these two diseases. A glance at the table will show that this coincidence is very evident. What has been said concerning cancer is true of these two causes also, and, furthermore, it should be borne in mind that these three causes have during the last fifteen years increased to an alarming extent.

Table II, which shows the deaths and rates for the same countries and periods as Table I, is based on the nativities of the *parents* of the deceased. The general death-rate column as compared with that of Table I presents a number of changes; for example, the mortality of those whose parents were born in Italy—that is, Italian-Americans, so-called—reaches the extremely high mark of 3643 per 100,000, or 36.43 per 1,000. The previous table shows that the rate among the native Italians is less than one-half as great. The rate for native Austro-Hungarians, 1660 per 100,000 in Table I gives way to one of 2340 in Table II. On the other hand, the mortality rate of 1849 per 100,000 for native Americans is superseded by a rate of 1398 per 100,000 for the descendants of native Americans; and the rate of the Irish-born, 2926 per 100,000, gives way to that of 2355 among the Irish-Americans. In analyzing these rates, the disturbing element is the fecundity of the different nationalities with its influence upon the mortality rates. Natives of the following countries have comparatively low birth-rates, and consequently their general death-rates in Table II show considerable decreases,—the United States, Ireland, Germany, England, Scotland, British America, Switzerland, France, Bohemia, and Sweden. On the other hand, considerable increases are shown in those nationalities noted for their opposition to the race-suicide tenets, namely, the Italians, Russian-Poles, and Austro-Hungarians. The birth-rates among the natives of these countries domiciled in the city have been exceedingly high (probably 32-35 per 1,000) during the past five years, and in consequence the number of children under five years of age is large compared with the number of children of corresponding age among the other

nationalities, and, as the mortality is very high at these ages, we naturally are not surprised at the resulting high death-rates.

Table II in the main corroborates the deductions drawn from Table I as to the mortality of the different nationalities from the causes specified. Thus in the typhoid fever column, omitting nationalities whereof the number of deaths does not reach twenty, the Italians and Austro-Hungarians have the highest mortality, while under the heading Measles we notice that the Italian children have a mortality rate almost five times that of the entire city. The Italian children show the highest mortality also from scarlet fever and whooping-cough, with the Hebrew children a close second; and neglect of the use of diphtheria antitoxin results in a mortality rate from diphtheria among the Italian children of three times that of all other nationalities combined, while among the Hebrew children the rate is almost twice that of the normal average. The mortality from pulmonary tuberculosis, shown in Table II, exhibits the same general features as in Table I, the Swiss, Irish, French, Bohemians and Scotch having death-rates much higher than the normal average. The rates from cancers, organic heart and chronic Bright's diseases, are all lower in Table II than in Table I. This is doubtless due to the fact that these diseases usually attack only those of middle life and advanced age, while the rates are figured on all ages, including young children as well as adults, thus giving lower mortality figures. Under the rates from broncho-pneumonia the most surprising figures of the whole table appear, the rate among Italian children reaching the enormous height of 710 per 100,000, more than $7\frac{1}{2}$ times as high as that among American children. When we consider under what conditions the Italian families herd together, and the opportunities thus afforded for the spread of contagious and infectious diseases, the difficulties encountered by the sanitary officers can be imagined, but not described. Think of seven tenement houses with a population of 1,500 and of a square block that by actual count harbors 5,100 souls, surrounded by other blocks harboring an average of 2,000, and you obtain an idea of the necessity for eternal vigilance on the part of the health officials. The lobar-pneumonia column affords added proof of the Italian national predisposition to diseases of the respiratory tract. Here the Italian leads, with none of the others a close second. The mortality from the diarrhoeal diseases impresses upon the medical profession the necessity of promoting the campaign for pure milk and food, and of using our best efforts to advance the worthy cause of a clean milk supply for our large cities with their teeming tenements. The death-rate from this cause among Italian children is double that of the Austro-Hungarian children, and three times as high as the average for the entire city.

TABLE II.

DEATHS AND DEATH-RATES PER 100,000 ACCORDING TO NATIVITY OF PARENTS OF DECEASED IN OLD CITY OF NEW YORK, 1906.

CAUSES OF DEATH.		POPULATION AND NATIVITY OF PARENTS.																
		Total.	United States.	Ireland.	Germany.	Italy.	Russia-Poland.	England.	Austro-Hungary.	Scotland.	British America.	Switzerland.	France.	Bohemia.	Sweden.	Mixed.		
		2,464,432	568,746	426,799	472,431	154,010	206,955	63,576	107,828	21,897	11,631	7,592	14,046	19,222	28,539	309,668		
All Causes	Deaths	46,108	7,951	10,049	5,722	5,611	3,763	813	2,523	341	156	144	305	338	313	3,795		
	Death-rate	1871	1398	2355	1213	3643	1818	1279	2340	1557	1341	1897	2171	1759	1097	1226		
Typhoid Fever	Deaths	369	85	67	50	43	23	8	26	2	2	—	5	2	8	30		
	Death-rate	14.9	14.9	14.3	10.6	27.9	11.1	12.6	24.1	9.1	17.2	—	35.6	10.4	28.0	9.7		
Measles	Deaths	662	101	39	20	198	88	2	35	—	—	—	2	6	2	87		
	Death-rate	26.8	17.8	9.1	4.2	128.6	42.5	3.1	32.4	—	—	—	14.2	31.2	7.0	28.1		
Scarlet Fever	Deaths	212	46	32	9	28	37	1	14	1	1	—	—	—	—	35		
	Death-rate	8.6	8.1	7.5	1.9	18.1	17.9	1.5	13.0	4.6	—	—	—	—	—	11.3		
Whooping-cough	Deaths	202	51	19	11	22	30	4	10	1	—	—	—	—	2	40		
	Death-rate	8.2	9.0	4.5	2.3	14.3	14.5	6.2	9.3	4.6	—	—	—	—	7.0	12.9		
Diphtheria	Deaths	983	198	74	42	202	147	11	86	1	1	—	2	6	10	160		
	Death-rate	39.9	34.8	17.3	8.9	131.1	71.0	17.3	79.8	4.6	8.6	—	14.2	31.2	35.0	51.7		
Pulmonary Tuberculosis .	Deaths	5,900	895	2,018	816	375	261	85	261	63	21	27	55	65	44	457		
	Death-rate	239.4	167.4	472.8	172.7	243.4	185.3	183.7	242.0	287.7	180.6	255.7	391.6	388.2	154.2	145.6		
Cancers	Deaths	1,856	259	436	416	66	177	64	118	27	10	12	19	27	18	90		
	Death-rate	75.3	45.5	102.1	88.1	42.8	87.9	100.7	109.4	123.3	86.0	158.1	185.3	140.5	63.1	29.1		
Heart Disease	Deaths	3,506	511	1,042	657	187	257	91	157	39	15	15	29	28	14	229		
	Death-rate	142.3	89.9	244.1	139.0	121.4	128.5	143.1	145.6	178.1	129.0	197.6	206.5	145.7	49.1	73.9		
Broncho-pneumonia . . .	Deaths	3,379	531	318	164	1,095	328	22	264	13	5	4	11	17	17	312		
	Death-rate	137.1	93.4	74.5	34.7	710.0	163.8	34.6	244.8	59.4	43.0	52.7	78.3	88.4	59.6	100.8		
Lobar Pneumonia	Deaths	3,303	542	851	403	513	215	68	164	25	16	10	20	16	18	228		
	Death-rate	134.0	95.3	199.4	85.3	333.1	107.7	107.0	152.1	114.2	137.6	131.7	142.4	83.2	63.1	73.6		
Diarrhoea	Deaths	3,652	803	373	186	745	363	26	280	9	7	7	11	28	27	478		
	Death-rate	148.2	141.2	87.4	39.4	483.7	182.2	40.9	259.7	41.0	60.2	92.2	78.3	145.7	94.6	154.4		
Chronic Bright's	Deaths	3,232	483	1,091	585	115	161	90	96	37	20	14	28	32	16	175		
	Death-rate	131.2	84.9	255.6	123.8	74.6	80.7	141.6	84.0	169.0	172.0	184.4	199.3	166.6	56.1	65.1		

TABLE III.

DEATH-RATES PER 1,000 IN CERTAIN TYPICAL BLOCKS, OLD CITY OF NEW YORK, 1906.

Block.	Type.	General Death-rate.	Pulmonary Tuberculosis.	Cancer.	Heart and Bright's.	Lobar Pneumonia.	Bronchopneumonia.	Diarrhoeal Diseases.
A.	Negro	38.56	8.64	0.66	4.66	2.00	5.99	2.66
B.	Syrian	35.83	3.91	1.96	1.30	4.57	3.91	3.91
C.	Chinese	34.65	12.47	0.69	5.54	3.46	0.69	—
D.	Irish	24.64	4.78	—	5.05	0.67	1.91	2.70
E.	Bohemian . . .	19.57	4.10	1.82	3.19	—	1.82	1.37
F.	Italian	19.26	0.96	—	1.74	0.96	8.29	2.31
G.	Russian Polish.	17.47	0.83	0.83	1.94	1.94	1.94	1.11
H.	Austro-Hungarian	16.43	1.21	0.72	2.17	1.93	1.93	1.93
I.	German	16.30	1.48	2.22	2.96	—	0.74	1.48
General rates entire city . .		18.71	2.39	0.75	2.74	1.34	1.37	1.48

The third and last table to which your attention is directed shows the death-rate per 1,000 from certain diseases and all causes in selected blocks typical of some of the nationalities and races. These blocks, situated in congested areas of the city, have populations of from 1,400 to 5,100 persons to the block. The influence of the negro's presence upon the mortality rate is more or less familiar to all, and is clearly shown in the table. The general rate, 38.56 per 1,000, of the selected negro block (A), "San Juan Hill," is more than double that of the city at large, while the rate from pulmonary tuberculosis is three and one-half times as high as the average for the city, and is only exceeded by that of the Chinese block. The mortality from organic heart, chronic Bright's, pneumonial, and diarrhoeal diseases, is also excessively high. Throughout the Greater City the mortality among the colored population is 27.16 per 1,000 as against a rate of 18.19 among the whites and a general death-rate of 18.35, the effect of the negro population being to increase the general rate by .16 of a point. The recent addition to our community of the Syrian and Armenian section bids fair to affect detrimentally the mortality rates. The general rate of 35.83 per 1,000 here (B) is almost equal to that of the negro block, and the mortality from cancer, pneumonial and diarrhoeal diseases is greater than that among the negroes. The Chinese block (C) contains about 1,450 Chinamen and is noted for its high death-rate from pulmonary tuberculosis as well as for

its unsavory police record. The general rate is 34.65 per 1,000, and the rate from pneumonia is almost as high as that of the Italian block. The Irish block (D) shows a high general death-rate and a high rate in all diseases preponderating at middle or advanced ages. The Bohemian block (E) shows a moderately high general death-rate and excessively high rates from pulmonary tuberculosis and organic heart disease. The Italian block (F) shows a general rate slightly above the average, but the highest rate from the pneumonias. The Russian-Polish block (G) shows a low general rate, with a pneumonia death-rate somewhat above the average. The low rates in this block and among the Jews throughout the city can be ascribed to several causes. Although living in densely populated sections, the Jew by reason of his temperate habits and his inherited vitality is able to resist and overcome infection, or, as has been said, the Jew is physically "tough" in the best sense of the term. Again the present status of the Jew as to age distribution at most age-periods, with the exception of that under five years, is favorable to a low death-rate. The Austro-Hungarian block (H) makes a very presentable showing, the general rate being almost the same as that shown in Table I. The German block (I) shows the lowest general death-rate, the only rate much above the average being that from cancer.

The conclusions forced upon us by the consideration of these tables are that the natives of Ireland by reason, in great measure, of their unfavorable age-grouping increase the general mortality, and the same is also true to a lesser extent of the natives of France, Switzerland, and Scotland. The natives of Italy, Bohemia, and the United States are credited with a rate almost the same as that of the general average of the city, while the natives of Sweden, Germany, Russia-Poland, Austro-Hungary, and England affect favorably the general mortality. On the other hand the immediate descendants of the Irish, Italians, and Austro-Hungarians are instrumental in increasing the general rate, and especially the rates from certain preventable and infectious diseases. The immediate descendants of most of the other nationalities, including Americans, serve to lower the general rate.